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10/571,296	11/14/2006	Haruo Yamashita	2006_0325A	6226

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EXAMINER	
LEIBY, CHRISTOPHER E	

ART UNIT	PAPER NUMBER
2629	

NOTIFICATION DATE	DELIVERY MODE
10/14/2011	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/571,296	YAMASHITA ET AL.	
	Examiner	Art Unit	
	CHRISTOPHER E. LEIBY	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *7/21/2011 and 8/1/2011*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☒ Claim(s) *9,12,17 and 21-25* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *9,12,17 and 21-25* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☒ The drawing(s) filed on *09 March 2006* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

12)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Detailed Action

1. **Claims 9, 12, 17, and 21-25** are pending.

Drawings

2. Figures 48-51 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 9, 12, and 21-25 rejected under 35 U.S.C. 103(a) as being obvious over **Hansen** (US Patent 6,069,597) in view of applicant's admitted prior

art (Patent Application Publication 2007/0109447 of the current application), herein after referred to as AAPA.

Regarding **independent claim 9**, Hansen discloses a visual processing device comprising:

a parameter outputter for determining an adjustment parameter according to ambient light and for outputting the adjustment parameter (*figure 9 reference ambient light sensor 580 for sensing ambient light output to comparison circuit 590 which creates an adjusted brightness signal in correspondence with the ambient light*);

a visual processor for receiving *a* input image signal, the processed signal and the adjustment parameter, for determining a conversion characteristic according to the processed signal, for adjusting the determined conversion characteristic to an adjusted conversion characteristic according to the adjustment parameter, and for converting the target pixel of the input image signal according to the adjusted conversion characteristic, so as to output an output converted signal, the visual processing device including a hardware processor (*figure 4 reference 300, brightness control circuit of figure 9 wherein one shot circuit 325 determines the length/conversion characteristic for an image signal in accordance with the ambient light as shown in figure 9 wherein the brightness voltage signal is created by a comparison circuit outputted to the brightness control circuitry, wherein the circuitry comprises PWM enable signals used to either control the brightness on length of the on time by the select rows or modify the display data through the data columns a selection of a modified row or column is a selection of a pixel and surrounding pixels, also reference column 14 lines 23-38*),

wherein the visual processor determines the conversion characteristic, such that, with respect to a specific brightness of the input image signal and as the brightness of the processed signal increases (*figure 4 reference 312*), a value of the output converted signal ***increases*** (*figure 4 and figure 9 wherein if the ambient light increases the signal 312 increases increasing the on time of the row/column via output signal 216; further when the ambient light decreases the signal 312 also decreases; the row on time window is generated in respect to the brightness control circuitry 300 with the added/subtracted value of the ambient light sensor via the comparison circuit, column 8 lines 21-45, to the output signal 216*), and

wherein the visual processor adjusts the determined conversion characteristic, such that, according to the adjustment parameter, as a brightness of the ambient light increases, at least one of a brightness and a local contrast of the output converted signal increases (*column 8 lines 35-37 wherein the average brightness is linearly proportional to the row on-time meaning as ambient light increases brightness of the display will also increase*).

Hansen does not specifically disclose a spatial processor or wherein with respect to a specific brightness of the input image signal and as the brightness of the processed signal increases, a value of the output converted signal descreases.

Hansen specifically discloses that the row on times (*output signal figure 4 reference 216*) decreases if the brightness voltage signal created by the output of the comparison circuit (*processed signal figure 9 reference 312*) also decreases. Further the output signal, 216, will always decrease when the corresponding

processed signal, 312, decreases. Hansen describes that the brightness voltage signal increases and decreases respectively as the detected ambient light increases and decreases respectively.

It would have been obvious to one skilled in the art at the time of the invention that the method of which a brightness voltage signal reflects the value of the detected ambient light is of a design preference wherein the value may be inversely related to the ambient light making the processed signal increase as the ambient light decreases making the output signal also decreasing enabling the benefit of a lower brightness voltage during prolonged periods of high ambient light (such as those prevalent in office buildings etc.).

AAPA discloses a spatial processor for spatially processing a plurality of pixels surrounding a target pixel of an input image signal, so as to generate and output a processed signal based on the plurality of pixels surrounding the target pixel of the input image signals (*background art of current application and figures 48-51, particularly paragraph [0003]*).

It would have been obvious to one skilled in the art at the time the invention was made to enable Hansen with a spatial processor as disclosed by AAPA to enhance edges and contrast of an input image signal as disclosed by AAPA (*paragraph [0008]*).

Regarding **claim 12**, Hansen discloses a visual processing device, wherein the output converted signal generated by enhancing a brightness of the input image signal based on a contrast between the processed signal and the

input image signal (*figure 9 reference 300 and 240 wherein a brightness signal converted to be applied to the column driver adjusts the pixel brightness image signal to be output by the column driver*), and increases the degree of enhancement of the brightness of the input image signal as the brightness of the ambient light becomes high based on the adjustment parameter (*figure 9 reference ambient light (brightness control circuit 300 outputs a PWM signal in respect to the ambient light signal 585 and brightness voltage signal 312*).

Regarding **independent claim 21**, Hansen discloses an image display device (*abstract*) comprising:

a parameter outputter for determining an adjustment parameter according to ambient light and for outputting the adjustment parameter (*figure 9 reference ambient light sensor 580 for sensing ambient light output to comparison circuit 590 which creates an adjusted brightness signal in correspondence with the ambient light*);

a transformation portion (*figure 9*) including:

a visual processor for receiving the input image signal, the processed signal and the adjustment parameter, for determining a conversion characteristic according to the processed signal, for adjusting the determined conversion characteristic to an adjusted conversion characteristic according to the adjustment parameter, and for converting the target pixel of the input image signal according to the adjusted conversion characteristic, so as to output an output converted signal, (*figure 4 reference 300, brightness control circuit of figure 9 which also performs the function of the spatial processor, wherein one shot circuit 325 determines the length/conversion characteristic for an image signal in accordance with the ambient light as*

shown in figure 9 wherein the brightness voltage signal is created by a comparison circuit outputted to the brightness control circuitry, wherein the circuitry comprises PWM enable signals used to either control the brightness on length of the on time by the select rows or modify the display data through the data columns a selection of a modified row or column is a selection of a pixel and surrounding pixels, also reference column 14 lines 23-38), and

a display unit operable to display the output converted signal (*figure 3 reference 100 also shown as 125 in figure 2*),

wherein the visual processor determines the conversion characteristic, such that, with respect to a specific brightness of the input image signal and as the brightness of the processed signal increases (*figure 4 reference 312*), a value of the output converted signal *increases* (*figure 4 and figure 9 wherein if the ambient light increases the signal 312 increases increasing the on time of the row/column via output signal 216; further when the ambient light decreases the signal 312 also decreases; the row on time window is generated in respect to the brightness control circuitry 300 with the added/subtracted value of the ambient light sensor via the comparison circuit, column 8 lines 21-45, to the output signal 216*), and

wherein the visual processor adjusts the determined conversion characteristic, such that, according to the adjustment parameter, as a brightness of the ambient light increases, at least one of a brightness and a local contrast of the output converted signal increases (*column 8 lines 35-37 wherein the average brightness is linearly proportional to the row on-time meaning as ambient light increases brightness of the display will also increase*).

Hansen does not specifically disclose a spatial processor or wherein with respect to a specific brightness of the input image signal and as the brightness of

the processed signal increases, a value of the output converted signal descreases.

Hansen specifically discloses that the row on times (*output signal figure 4 reference 216*) decreases if the brightness voltage signal created by the output of the comparison circuit (*processed signal figure 9 reference 312*) also decreases. Further the output signal, 216, will always decrease when the corresponding processed signal, 312, decreases. Hansen describes that the brightness voltage signal increases and decreases respectively as the detected ambient light increases and decreases respectively.

It would have been obvious to one skilled in the art at the time of the invention that the method of which a brightness voltage signal reflects the value of the detected ambient light is of a design preference wherein the value may be inversely related to the ambient light making the processed signal increase as the ambient light decreases making the output signal also decreasing enabling the benefit of a lower brightness voltage during prolonged periods of high ambient light (such as those prevalent in office buildings etc.).

AAPA discloses a spatial processor for spatially processing a plurality of pixels surrounding a target pixel of an input image signal, so as to generate and output a processed signal based on the plurality of pixels surrounding the target pixel of the input image signals (*background art of current application and figures 48-51, particularly paragraph [0003]*).

It would have been obvious to one skilled in the art at the time the invention was made to enable Hansen with a spatial processor as disclosed by AAPA to enhance edges and contrast of an input image signal as disclosed by AAPA (*paragraph [0008]*).

Regarding **claim 22**, Hansen discloses an image display device, wherein the parameter outputter comprises a brightness detection unit operable to detect the brightness of the display environment of the display unit, and output the adjustment parameter in accordance with the brightness of the display environment detected by the brightness detection unit (*figure 9 reference ambient light sensor*).

Regarding **independent claims 23-25**, Hansen discloses a visual processing method and processor used for an image output device (*figure 8 reference 501*) and a non-transitory computer-readable recording medium having an image processing program recorded thereon (*wherein figure 9 discloses hardware, a program is inherent to make the hardware work being stored on a medium for the hardware to use*), the processor executing a process/method/program of:

determining an adjustment parameter according to ambient light (*figure 9 reference ambient light sensor 580 for sensing ambient light output to comparison circuit 590 which creates an adjusted brightness signal in correspondence with the ambient light*);

performing visual processing, via a hardware processor, by receiving the input image signal, the processed signal and the adjustment parameter, by determining a conversion characteristic according to the processed signal, by adjusting the determined conversion characteristic to an adjusted conversion

characteristic according to the adjustment parameter, and by converting the target pixel of the input image signal according to the adjusted conversion characteristic, so as to output an output converted signal (*figure 4 reference 300, brightness control circuit of figure 9 which also performs the function of the spatial processor, wherein one shot circuit 325 determines the length/conversion characteristic for an image signal in accordance with the ambient light as shown in figure 9 wherein the brightness voltage signal is created by a comparison circuit outputted to the brightness control circuitry, wherein the circuitry comprises PWM enable signals used to either control the brightness on length of the on time by the select rows or modify the display data through the data columns a selection of a modified row or column is a selection of a pixel and surrounding pixels, also reference column 14 lines 23-38*),

wherein the performing of the visual processing determines the conversion characteristic, such that, with respect to a specific brightness of the input image signal and as the brightness of the processed signal increases (*figure 4 reference 312*), a value of the output converted signal *increases* (*figure 4 and figure 9 wherein if the ambient light increases the signal 312 increases increasing the on time of the row/column via output signal 216; further when the ambient light decreases the signal 312 also decreases; the row on time window is generated in respect to the brightness control circuitry 300 with the added/subtracted value of the ambient light sensor via the comparison circuit, column 8 lines 21-45, to the output signal 216*), and

wherein the performing of the visual processing adjusts the determined conversion characteristic, such that, according to the adjustment parameter, as a brightness of the ambient light increases, at least one of a brightness and a local contrast of the output converted signal increases (*column 8 lines 35-37 wherein the*

average brightness is linearly proportional to the row on-time meaning as ambient light increases brightness of the display will also increase).

Hansen does not specifically disclose a spatial processor or wherein with respect to a specific brightness of the input image signal and as the brightness of the processed signal increases, a value of the output converted signal descreases.

Hansen specifically discloses that the row on times (*output signal figure 4 reference 216*) decreases if the brightness voltage signal created by the output of the comparison circuit (*processed signal figure 9 reference 312*) also decreases. Further the output signal, 216, will always decrease when the corresponding processed signal, 312, decreases. Hansen describes that the brightness voltage signal increases and decreases respectively as the detected ambient light increases and decreases respectively.

It would have been obvious to one skilled in the art at the time of the invention that the method of which a brightness voltage signal reflects the value of the detected ambient light is of a design preference wherein the value may be inversely related to the ambient light making the processed signal increase as the ambient light decreases making the output signal also decreasing enabling the benefit of a lower brightness voltage during prolonged periods of high ambient light (such as those prevalent in office buildings etc.).

AAPA discloses a spatial processor for spatially processing a plurality of pixels surrounding a target pixel of an input image signal, so as to generate and

output a processed signal based on the plurality of pixels surrounding the target pixel of the input image signals (*background art of current application and figures 48-51, particularly paragraph [0003]*).

It would have been obvious to one skilled in the art at the time the invention was made to enable Hansen with a spatial processor as disclosed by AAPA to enhance edges and contrast of an input image signal as disclosed by AAPA (*paragraph [0008]*).

4. **Claim 17** is rejected under 35 U.S.C. 103(a) as being obvious over **Hansen**, in view of **Weindorf et al.** (US Patent 6,483,245), herein after referred to as Weindorf.

Regarding **claim 17**, Hansen discloses a visual processing device, wherein the visual processor has a processing characteristic, such that with respect to the specific brightness of the input image signal, when a value of the processed signal is fixed to a predetermined level, the output converted signal becomes larger in value according to a linear line, such that a degree of the linear line decreases as the brightness of the ambient light increases, so that the degree of the linear line is based on the adjustment parameter (*column 8 lines 35-37*).

Hansen discloses wherein the adjustment relationship between ambient light and the converted adjustment input signal/row on time is linear (*column 8 lines 35-37*) and not a downwardly convex curve.

Weindorf discloses wherein brightness adjustment may be performed dependent upon a concave parabolic curve/downwardly convex curve (*figure 6 and column 6 lines 10-27*).

It would have been obvious to one skilled in the art at the time the invention was made to enable Hansen's brightness adjustment display to follow a concave parabolic curve/downwardly convex curve relationship between ambient light and brightness adjustment to enable gradual brightness changes rather than sharp changes which may occur such as when a short period of ambient light change occurs before returning back to the original ambient light level as described by Weindorf (*column 1 lines 33-55*)

Response to Arguments

5. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection necessitated by amendment. This action is **non-final**. Examiner will grant an interview at request of applicant to discuss the current status of prosecution.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTOPHER E. LEIBY whose telephone number is (571)270-3142. The examiner can normally be reached on 9 - 5 Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexander Eisen can be reached on 571-272-7687. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/CHRISTOPHER E LEIBY/

Examiner, Art Unit 2629

October 10th, 2011